

ABSTRACT

An instrument which utilizes this invention is a pulse generator which has adjustable rise and fall time. The generation of timing of pulses is under  
5 control of a digital circuit, and the timing of the beginning and end of each pulse and thus duty cycle is precise. The pulse generator also has an analog-to-digital converter that is used to measure voltages internal to the instrument. Voltage measurements are used to calculate the rise and fall times of the pulses. The rise and fall time of the pulses are adjusted based upon  
10 mathematical calculations. Control of rise and fall times is implemented using circuitry internal to the pulse generator. Rise time and fall time circuitry adjusts the rate of change of voltage ( $dv/dt$ ) on the pulses generated. Rise time and fall time are independently adjustable.